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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/725,384	11/29/2000	James M. Ziobro	D/A0125Q XER 2 0404	6573

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EXAMINER

GOOD JOHNSON, MOTILEWA

ART UNIT	PAPER NUMBER
2672	10

DATE MAILED: 11/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/725,384

Applicant(s)

ZIOBRO, JAMES M.

Examiner

Motilewa A. Good-Johnson

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 1-3 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. This office action is responsive to the following communications: IDS, paper #4, filed 11/29/2000; Amendment A, filed 03/17/2003; Amendment B, filed 08/25/2003, IDS, paper #9, filed 10/23/2003.

This action is made final.

2. Claims 4-23 are pending in this application. Claims 4, 10 and 21 are independent claims. Claims 4-12, 14-18 and 21-23 have been amended.

3. The present title of this application is "Intelligent Color to Texture Converter" (as originally filed).

Election/Restrictions

4. Applicant's election with traverse of Group II in Paper No. 6 is acknowledged. The traversal is on the ground(s) that rendering an image in multi-color color space to a single colorant space, adding texture and applying modulating should not be restricted. This is not found persuasive because texture mapping is classified in 345/582, and would require an additional search.

The requirement is still deemed proper and is therefore made FINAL.

5. Claims 1-3 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected group, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 6.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 4-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaburagi et al., U.S. Patent Number 5,680,230, "Image Processing Method and Apparatus Thereof", class 358/520, 10/21/1997.

As per independent 4, a method for rendering an image . . . comprising:
collecting histogram information from the multi-color color space image wherein bins within the histogram classify image pixels based on luminance information and hue information (Kaburagi discloses obtaining a luminance data from the luminance signal generation unit to enable density data, col. 7, lines 4-10, and discloses a hue detection unit from the density data generated, col. 7, lines, and further discloses obtaining a histogram based on the density, represented by the luminance data, and hue, col. 19, lines 56-67) classifying peaks within the histogram . . . similar luminance as conflicting colors (Kaburagi discloses counting the histogram data and the peak is set for a maximum density and based on the set value applying density gradient to represent values with a satisfactory gradation, col. 19, line 56 – col. 20, line 28) and applying spatial modulation to at least one gray scale version of the conflicting colors . . .

However, it is noted that Kaburagi fails to disclose applying spatial modulation. Kaburagi discloses converting the luminance signal to a converted pattern density in which the type of pattern is changed instead of the density for the luminance level in an area of the image, col. 31, lines 1-31. It would have been obvious to one of ordinary skill in the art at the time of the invention to include spatial modulations for the patterns being applied to convert the pattern density with spatial modulation to account for all the density and luminance levels.

With respect to dependent claim 5, before classifying, locating peaks within the histogram data. (Kaburagi discloses obtaining histogram peaks based on a density gradient, col. 19, lines 60-62)

With respect to dependent claim 6, applying spatial modulation further comprises associating a unique modulation to the gray scale versions of each of the conflicting colors. (Kaburagi discloses applying any type of pattern to represent the gradation levels, col. 31, lines 1-15)

With respect to dependent claim 7, measuring a color distance between at least one pixel in the image and at least one conflicting color; applying an attenuated spatial modulation to at least one pixel in the gray scale version of the image . . . (Kaburagi discloses a color separation method for determining the separation of the density values for the gradient of the color values separated by an angle of a maximum axis, col. 18, lines 5-55)

With respect to dependent claim 8, applying an attenuated spatial modulation to at least one pixel in the gray scale version of the image, the attenuation ranging from

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zero to one hundred percent of a reference modulation . . . attenuation being a non-linear function of the measure color . . . (Kaburagi discloses the patterns generated and selected to meet the luminance signal level for the density and area to be outputted, col. 31, lines 21-41)

With respect to dependent claim 9, applying an attenuated spatial modulation to at least one pixel in the gray scale version of the image, the attenuation ranging from zero to one hundred percent of a reference modulation . . . attenuation being a linear function of the measure color . . .

However, it is noted that Kaburagi fails to disclose applying an attenuated spatial modulation to at least one pixel ranging from zero to one hundred percent. Kaburagi discloses applying a pattern to the density of an area based on the gradation values and the values set to meet the luminance signal level. It would have been obvious to one of ordinary skill in the art at the time of the invention that the attenuated spatial modulation is consistent with the pattern being applied in Kaburagi and that gradation represents a gray scale version, and to include a range to meet the luminance signal level of the gradation values.

As per independent claim 10, an image processor operative to generate a single colorant version of a color image . . . comprising: an image analyzer operative to find and classify conflicting colors in the color image; (Kaburagi discloses an image processing unit to correct and convert image information, col. 6, lines 10-27) and a gray scale modulator operative to add spatial modulations to gray scale versions . . .

However, it is noted that Kaburagi fails to disclose a gray scale modulator. Kaburagi discloses applying a pattern to the density of an area based on the gradation values and the values set to meet the luminance signal level. It would have been obvious to one of ordinary skill in the art at the time of the invention that the attenuated spatial modulation is consistent with the pattern being applied in Kaburagi and that gradation represents a gray scale version, and to include a range to meet the luminance signal level of the gradation values.

With respect to dependent claim 11, a histogram collector operative to classify pixels in the color image based on a characteristic that is also used to generate the single colorant version . . . (Kaburagi discloses a histogram memory to count the data in the image and obtaining the hue and density information, col. 19, lines 56-67)

With respect to dependent claim 12, a conflicting color detector operative to examine the histogram and find pixels that are similar with respect to the characteristic that is used to generate the single colorant version . . . (Kaburagi discloses an operation unit in which color separation is performed for the hue angle, col. 20, lines 22-28)

With respect to dependent claim 13, a color relationship discriminator operative to receive conflicting color classification information from the image analyzer and color image pixel information . . . (Kaburagi discloses a color separation method for determining the separation of the density values for the gradient of the color values separated by an angle of a maximum axis, col. 18, lines 5-55)

With respect to dependent claim 14, a modulation attenuator operative to attenuate a gray scale modulation based on the relationship between the color image pixel and the conflicting color.

However, it is noted that Kaburagi fails to disclose a modulation attenuator. Kaburagi discloses applying a pattern to the density of an area based on the gradation values and the values set to meet the luminance signal level. It would have been obvious to one of ordinary skill in the art at the time of the invention that the attenuated spatial modulation is consistent with the pattern being applied in Kaburagi and that gradation represents a gray scale version, and to include a modulation attenuator to meet the luminance signal level of the gradation values.

With respect to dependent claim 15, a spatial modulation generator operative to generate a gray scale modulation for application to a gray scale version of a color.

However, it is noted that Kaburagi fails to disclose a gray scale modulator. Kaburagi discloses applying a pattern to the density of an area based on the gradation values and the values set to meet the luminance signal level. It would have been obvious to one of ordinary skill in the art at the time of the invention that the attenuated spatial modulation is consistent with the pattern being applied in Kaburagi and that gradation represents a gray scale version, and to include a range to meet the luminance signal level of the gradation values.

With respect to dependent claim 16, relationship between the conflicting color and the color image pixel comprises a color distance within a color space. (Kaburagi discloses a color separation method for determining the separation of the density values

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for the gradient of the color values separated by an angle of a maximum axis, col. 18, lines 5-55)

With respect to dependent claim 17, relationship . . . pixel comprises a color distance within a perceptually uniform color space. (Kaburagi discloses a two-separation color unit, col. 9, lines 29-39)

With respect to dependent claim 18, relationship . . . pixel comprises a color distance within a CIELAB color space. (Kaburagi discloses a two-separation color unit, col. 9, lines 29-39)

With respect to dependent claim 19, image processor further comprises an image receiver. (Kaburagi discloses an image read unit, col. 6, line 36)

With respect to dependent claim 20, image receiver further comprises a xerographic printer. (Kaburagi discloses a printer unit, col. 6, line 28)

As per independent claim 21 and dependent claims 22 and 23, they are rejected based upon similar rational as above independent claim 4 and dependent claims 5 and 6 respectively.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Motilewa A. Good-Johnson whose telephone number is (703) 305-3939. The examiner can normally be reached on Monday - Friday 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Razavi can be reached on (703) 305-4713. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

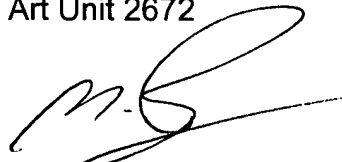
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-0377.

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Motilewa A. Good-Johnson
Examiner
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mgj
November 14, 2003

A handwritten signature in black ink, appearing to read 'M. Razavi', with a large, stylized loop at the end.

MICHAEL RAZAVI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600